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COAL LEASE APPLICATION C-27931

EA NO. CO-010-9-183

environmental assessment

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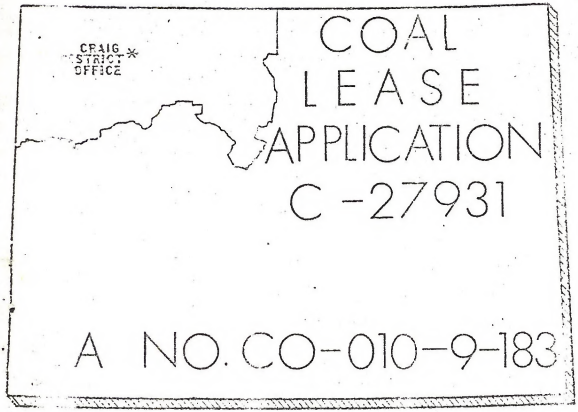

COAL LEASE APPLICATION C-27931

A NO. CO-010-9-183

environmenta assessment

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Activity 4110-1126

EAR FACE SHEET

OFFICE: Craig District Kremmling Res. Area
FY & REPORT # CO-010-9-183

ACTION: Wyoming Fuel Company
Emergency Coal Lease
(Project Name, Case Type, etc.)

NO. OF PAGES 37

LOCATION: T. 8 N., R. 78 W., Sec. 10 & 11
Jackson County, Colorado

SERIAL NO. C.- 27931

REQUIRED BY 43 CFR 23: YES ☐ NO ☐

TEAM SIGNATURES:	TITLE	RESOURCE VALUES ASSIGNED	HOURS
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Charles J. Cox	Wildlife Biologist	Wildlife	60
Robert J. Hyer	Reality Specialist	Land Use	38
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Curt Leeton	Soils Specialist	Soils	21
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[illegible]	Area Manager	Review	2

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COMPLIANCE OFFICER: Area Manager (Title or Name)

DISTRICT MANAGER: Marion W. Pearson (Signature)

9/27/79 (Date)

CSO 1790-1 (Jun. 1977)

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Section I - Purpose and Need for Action

Wyoming Fuels Company submitted an application, C-27931, which meets the Emergency Coal Leasing Criteria pursuant to 43 CFR 3425.1-4(a)(1)(i). The purpose of the emergency leasing program is to offer unleased coal deposits for lease sale, apart from the competitive leasing process described in 43 CFR 3420.4 through 3420.7, where an emergency need for that coal is demonstrated. In this case, Wyoming Fuels has shown that its Sigma Mine will close if federal coal is not made available for lease sale before February 15, 1980. Wyoming Fuels' existing mining operation on private coal lands has been producing coal for at least two years before the date of application, March 27, 1979, and the federal coal is needed to maintain the existing operation at the current annual level of production.

The United States Geological Survey (USGS) documents that the lands required for mining the needed coal reserves are described as follows:

T. 8 N., R. 78 W., 6th P.M.
Section 10: E½SE¼NE¼
SE¼NE¼NE¼

Section 11: W½NW¼,

and are located approximately 12 miles east of the town of Walden, Colorado.

Issuance of the lease would allow Wyoming Fuels to continue to mine and remove approximately 92,000 tons per year for eight years from the Sudduth Coal Seam.

A surface mining operation using scrapers, crawler tractors and trucks is proposed by the applicant. This method is currently employed on Wyoming Fuels' existing mine and the Kerr Mine, located just north of the Sigma Mine. USGS believes this is the best method to gain the maximum economic recovery of the coal resources in this area.

The lands applied for have been included in, and are consistent with, the North Park Management Framework Plan (MFP), update completed in 1977, which is on file in the Kremmling Resource Area Office, Bureau of Land Management, Kremmling, Colorado. The lands are also included in the South McCallum Known Recoverable Coal Resource Area (KRCRA). The land surface and the minerals are in federal ownership under the administration of the Bureau of Land Management.

Section II - Alternatives

A. Lease the 110 acres of strippable coal reserves within the tract adjacent to Wyoming Fuels' Sigma Mine, in accordance with the 43 CFR 3400, for eventual surface mining using the strip method.

The tract lies 12 miles east of the town of Walden, Colorado, in Jackson County (see Map 1). The legal description is:

MAP 1

Shipman Mtn.
Medicine Bow Range
Eagle Hill
Canadian River
STATE FOREST
NORTH McCALLUM
FLUME
WALDEN JACKSON COUNTY AIRPORT
Elk Mountain
LARIMER
JACKSON
COLORADO
STANDARD
LANDING FIELD
Michigan River
CLEVELAND DITCH
BOSTWICK DITCH
Brown Park
MOOR
Michigan Hill
OVERLAND DITCH
ROUTT NATIONAL FOREST
North Rawah Pe

T. [illegible] N., R. 78 W., 6th P.M.
Section 10: E½SE¼NE¼
SE¼NE¼NE¼

Section 11: W½NW¼ (see Map 3).

The land surface and all minerals are federally owned under the administration of the Bureau of Land Management. The tract lies within the South McCallum KRCRA. These lands contain approximately 731,000 tons of surface recoverable coal to a depth of 200 feet. The coal is in the Sudduth Coal Seam, which dips 32 to 36 degrees to the south (see Figure 1).

Table 1

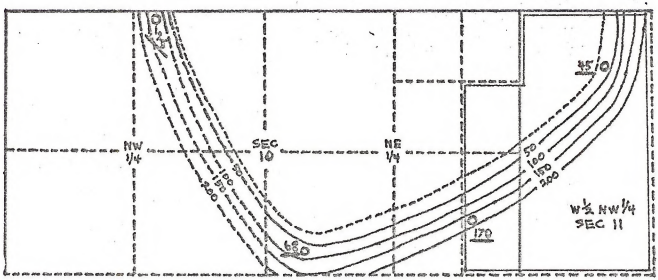
Coal Data Summary

Quality	
BTU/lb.	10,710
Ash %	8.4
Moisture %	12.74
Sulfur %	0.27
Quantity	
Thickness of Seam (feet)	19 (Average)
Depth (feet) recoverable by strip method	Varies because of dip--0 - 200
Dip (degree)	21° - 36° southerly
Recoverable coal by strip method (tons)	731,000

The type of mine proposed is a surface mine using strip mining techniques. The annual production would be at the rate of 91,942 tons for an estimated mine life of 8 years on the 110 acres.

The number of employees required to conduct the mining and hauling operations would be 22.

FIGURE 1

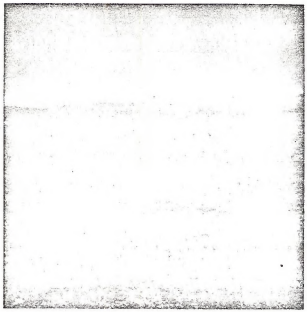


Subject land.

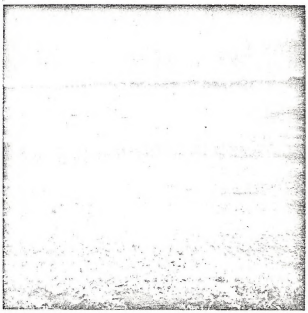
Coal outcrop, inferred.

50 — Overburden contour interval in feet, dashed where inferred.

170/0 — Drill hole, overburden thickness in feet.



PHOTOGRAPH 1



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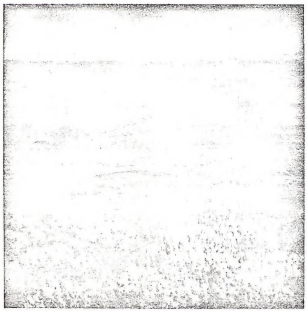
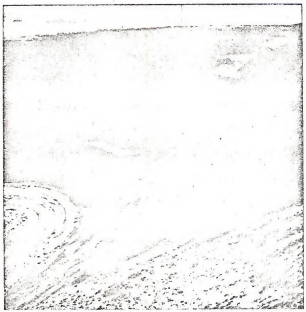


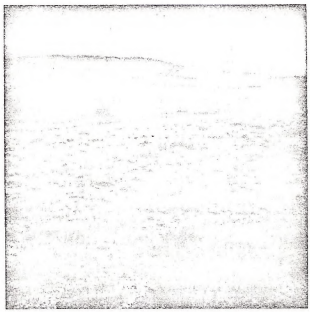
PHOTOGRAPH 3

PHOTOGRAPH 4



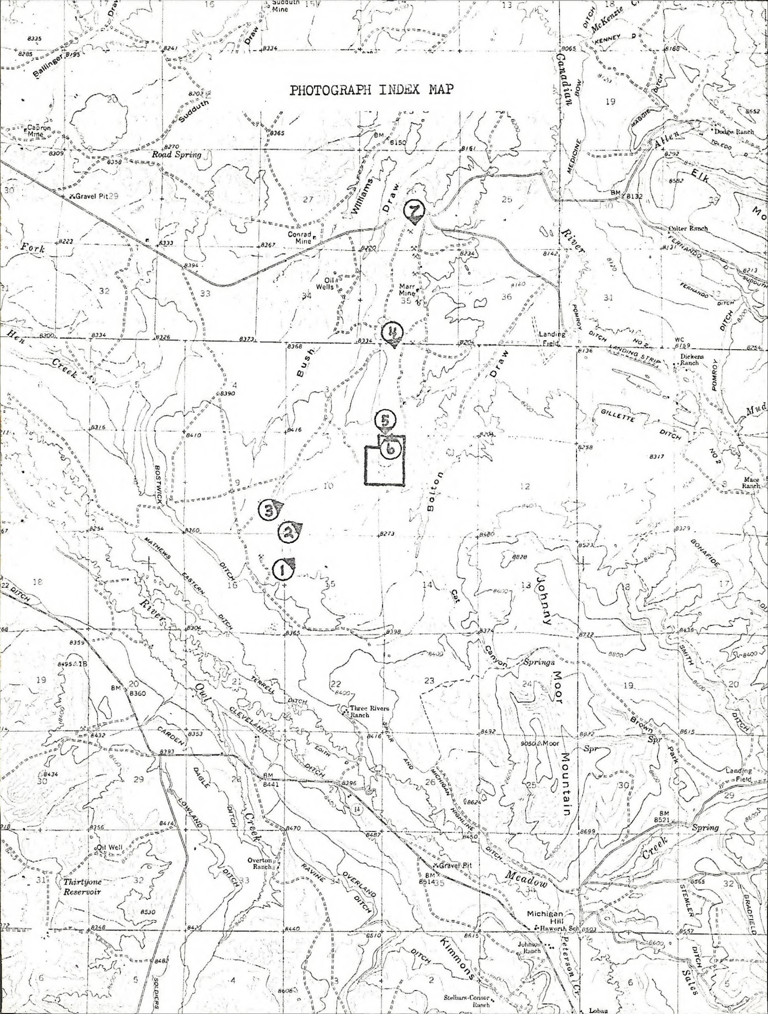
PHOTOGRAPH 5

PHOTOGRAPH 6



PHOTOGRAPH 7

PHOTOGRAPH INDEX MAP



Facilities within the lease area may include an office building change house, fuel storage, and equipment storage and maintenance buildings.

Most facilities outside the tract needed for the mining operation are in place (such as power lines, telephone cable, and haul road).

There are two operating strip mines within the vicinity of the proposed lease tract. Wyoming Fuels' Sigma Mine adjoins the tract [illegible] and the Kerr Coal Company's mine is approximately [illegible] of the proposed lease area.

It can be assumed that the mining would be completed within eight years and that reclamation would be an ongoing process along with the mining. All reclamation would be done according to the specifications of the surface management agency, the Bureau of Land Management. Preliminary reclamation on the area could be considered complete when the disturbed lands have been backfilled, graded, contoured, and seeded. Complete reclamation would be when the area is restored to its present productivity and suitable for the existing land uses, which are wildlife habitat, livestock grazing, and dispersed recreation. This may require up to five years beyond mine life to achieve complete reclamation.

If leased, the successful lessee would have to comply with all federal, state, and local laws and regulations governing the development, operation, and abandonment of the mine, environmental protection and safety. This includes, but is not limited to, the following:

1. Mineral Leasing Act of 1920
2. Federal Coal Leasing Amendments Act of 1976
3. Federal Lands Policy and Management Act of 1976
4. Surface Mining Control and Reclamation Act of 1977
5. 43 CFR 3400
6. 30 CFR 211
7. 30 CFR 700-899.

Further environmental assessment will occur when a detailed mining and reclamation plan is submitted, and when any additional applications are received for ancillary facilities needed for the mining operation (such as rights-of-way, temporary use permits, etc.) that would occur outside the area of operations of the mine.

This environmental assessment has shown that there are no known reasons why this site cannot be properly reclaimed, provided that the identified precautions are implemented during reclamation.

B. Do not offer the 110-acre tract of strippable coal reserves for lease.

Under this alternative, the tract would not be leased, no coal development would occur, and 731,000 tons of recoverable coal would not be removed or used. The use of the surface and the resources would continue in the present manner.

Not offering the tract for lease would result in the closure of the Wyoming Fuels' Sigma Mine by February 15, 1980 because of the lack of an adjacent source of economically recoverable coal reserves. This would mean the loss of 17 to 22 jobs with $363,000 in wages and salaries paid annually. These figures represent 6.6% of the work force living in Jackson County and 9.6% of the wages and salaries received by the work force.

C. No other alternatives are practical or economically feasible. The 110-acre size of the tract limits the feasibility of a new company coming in and developing a mine. If the tract were offered for lease and someone other than Wyoming Fuels were the successful bidder, it is more likely that they would use a mining method similar to that used by both Kerr and Wyoming Fuels. Surface mining using stripping techniques has proven to be the best method for maximum economic recovery of the coal resource in the steeply dipping Sudduth Coal Seam. This method was described in Alternative "A."

Other mining methods such as underground mining and in situ processing would be economically and technically impractical on this small acreage and therefore will not be considered as a viable alternative.

Section III - Affected Environment

A. Climate - The climate of the area is characterized by long, cold winters, short, cool summers, low precipitation, and a short growing season. The average annual temperature at Walden, Colorado, is 37.1° F. The average temperature of the warmest month, July, is 58.9° F., and of the coldest month, January, is 16.0° F. The average annual precipitation at Walden is 10 inches. Precipitation amounts increase in the area as the elevation increases. Since the site is at a slightly higher elevation, the precipitation is estimated to be between 11 and 12 inches per annum. Approximately 50% of the precipitation occurs as snow. The average annual frost-free period is 40 days.

The prevailing winds are westerly in direction, with a moderate velocity. The peak wind period is generally between 12:00 noon and 6:00 p.m. Inversions are a commonly occurring weather phenomenon in North Park and can be expected to occur approximately 80% of the time, generally during the morning. In summer, the inversions will disperse by late morning but in the winter they may remain for several days.

The low precipitation, short growing season, and almost continuous winds are important factors to consider in prescribing vegetation reestablishment

procedures. A study is currently underway on reclaimed surface mined lands, taking into consideration climatic limitations. The study is ~~located~~ on the Kerr Mine and is part of the McCallum Energy Mineral Reclamation Inventory and Analysis (EMRIA) study.

B. Air Quality - Information from the Colorado Department of Health, Division of Air Pollution, states there is no site specific air quality data available. The only information available is for Region [illegible] of which Jackson County is a part. The air quality for Region 12 [illegible] state standards on all counts of all known pollutants.

The air quality is presently affected by dust resulting from the mining and transportation of coal on the two adjacent strip mines and exhaust emissions from the equipment used in the mining and transportation. The ongoing operations have not lowered the air quality standards below acceptable state standards.

C. Topography, Geology and Paleontology - The proposed acreage is situated in the eastern central portion of the topographic depression, an intermontane basin, called North Park. Gently rolling hills bisected by shallow valleys carrying intermittent streams typifies the site (see Map 2).

The Soil Conservation Service (SCS), in evaluating its soil survey data, concluded that no part of the acreage qualified as an alluvial valley.

The site is underlain by the Coalmont Formation of the Cretaceous or early Tertiary age. The Coalmont Formation in this vicinity is characterized by dark-colored shale and sandstone beds containing coal in the lower portions, while lighter-colored sandstones and conglomerates are present in the upper portion. The main structure is the McCallum Anticline which dips 32° to 36° to the south.

Typical of the Coalmont Formation is the absence of fossils. The scarcity of vertebrate, invertebrate, and plant fossils was a method used to age date the formation.

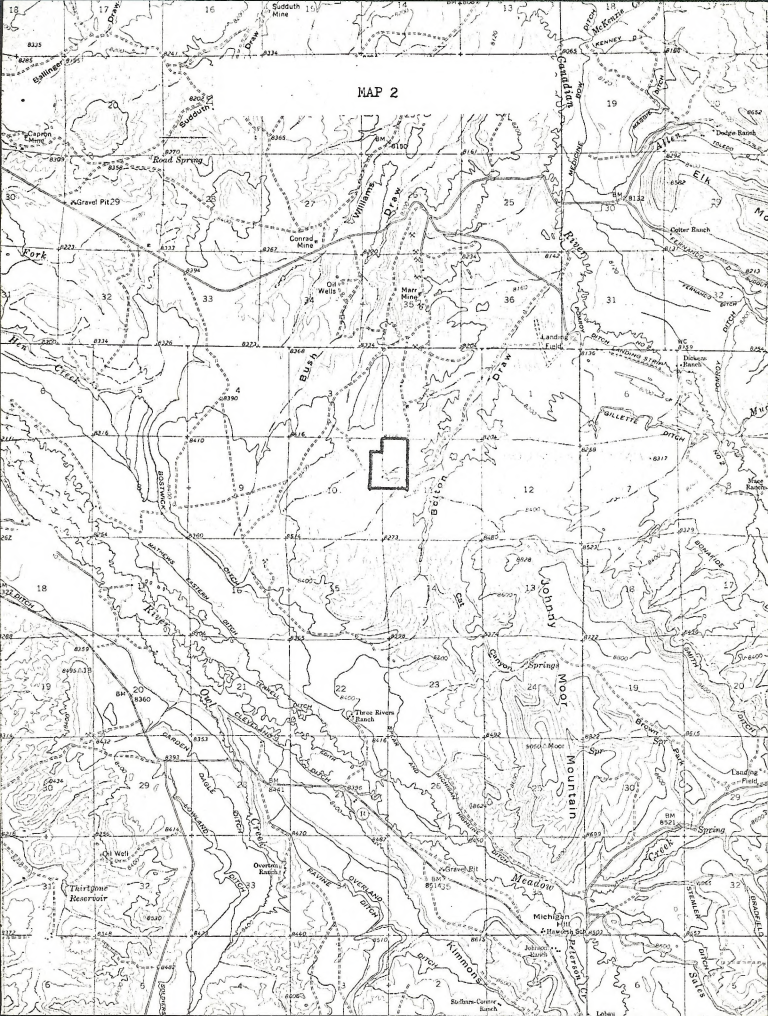
D. Minerals

1. Coal is the primary mineral of economic importance within the acreage. The specific coal information concerning the coal of the Sudduth Coal Seam was described in Sections I and II of this EA.

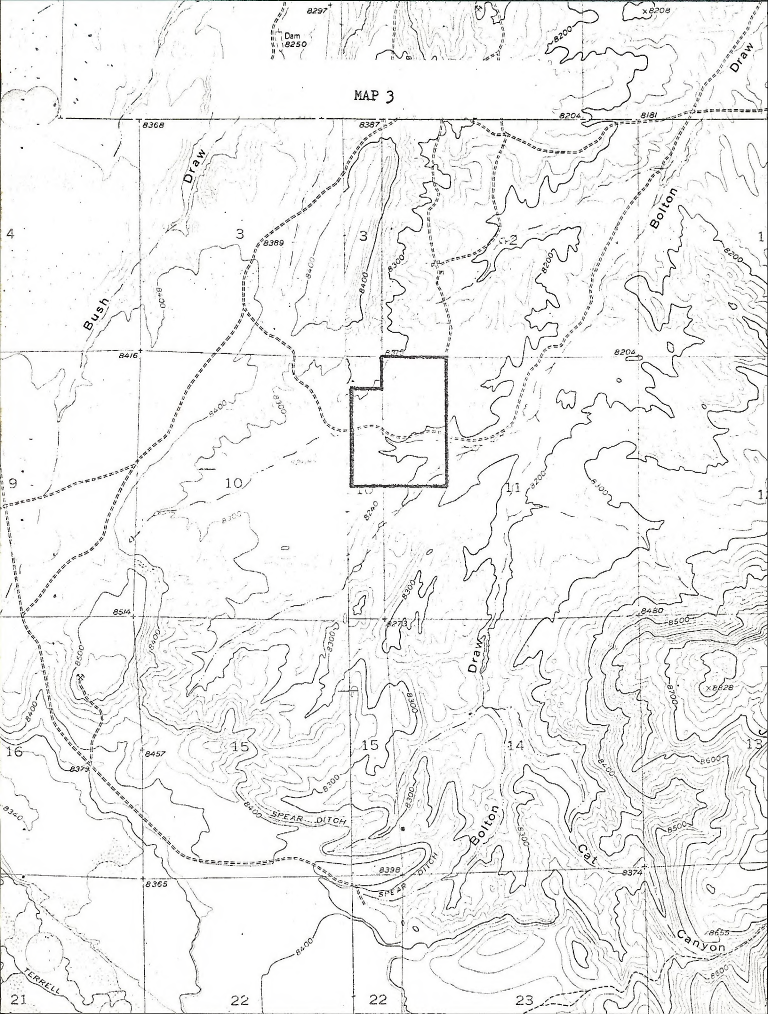
   The coal seam continues beyond this tract and is determined to be of good quality and economically recoverable. Because of this, the demand for future leases will exist, either to continue to expand to present operations or for new mines which may employ different mining techniques than are now used.

2. Oil and gas have potential for development on the site. M & T Corporation operates a producing oil well located one-half mile south of the

MAP 2



Sudduth Mine
Ballinger
Capron Mine
Sudduth
Road Spring
Gravel Pit
Conrad Mine
Williams
Draw
Oil Wells
Marr Mine
Canadian
River
Medicine
Bow
Dodge Ranch
Allen
Elk
Colter Ranch
Fork
Hen
Creek
Landing Field
Dickens Ranch
Bush
Bolton
Gillette
Ditch
Mace Ranch
Bostwick
Mathews
Eastern
Ditch
Johnny
Moor
Mountain
Cat
Canyon
Springs
Three Rivers Ranch
Owl
Creek
Cleveland
Garden
Dagle
Lowland
Terrell
Edith
Highline
Ravine
Overland
Overton Ranch
Oil Well
Thirtyone Reservoir
Gravel Pit
Meadow
Michigan Hill
Haworth Sch
Johnson Ranch
Kimmons
Peterson Cr
Stelbars-Connor Ranch
Lobau
Spring
Brown
Park
Smith
Bonafide
Stemler
Bradfield
Sales
Soldiers
Fernando
Pomroy
Landing Strip
Toledo
McKenzie
Kenney
Maggie


Dam
8250
8297
x8208
8200
Draw
8204
8181
8368
8387
Bush
Draw
Bolton
4
3
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2
8389
8400
8300
8416
8204
9
10
11
8240
8514
8273
8480
8500
x8828
8700
16
15
15
14
13
8457
8379
8340
SPEAR DITCH
8398
8365
8374
Bolton
Draw
Cat
Canyon
8655
8600
TERRELL
21
22
22
23

MAP 3

proposed site (see Map 4). It is pumping oil from a depth of over 6,000 feet. The 10 acres included in the lease application (Section 10: SE¼NE¼NE¼) is in the South McCallum KGS Field. USGS has determined that there is no coal within the 10-acre tract, but it is needed in conjunction with the stripping operation, for surface use only.

3. Other Minerals - There is no evidence of any other minerals of economic importance occurring within the proposed tract boundary.

E. Soils - The proposed lease area is dominated by two major soil complexes. The most prominent of these is the Coalmont-Fluetsch complex (X73-AE) which occupies approximately 39% of the lease area and occurs on the valley slope and upland hillsides. The Aaberg-Barishman clay complex (X21-AE), second in prominence, covers approximately 30% of the area and also occurs on the upland hillsides.

Both the Coalmont-Fluetsch and Aaberg-Barishman complexes have similar soil characteristics. These soils are moderately deep, contain predominantly clay subsoils, are calcareous in nature, and have variable surface textures,from sandy loam to clay. Additionally, the erosion hazard rating for these soils is slight to moderate and, in an average year, these complexes may yield between 550 and 700 lbs./acre (dry weight) in forage production. However, because of their high clay content, they have been classed as unsuitable for agricultural uses.

Accompanying the larger soil complexes on the proposed lease site are two other important soils which are more erosive in character. The first of these are the Spicerton sandy loams (X31-AC) which comprise the upland stream channels and intergrade into the broader stream basins. The Spicerton soils cover approximately 18% of the proposed lease site. The surface texture of these soils is composed of sandy loam or loamy fine sand that is approximately 2 inches thick and overlies a deep textured clay subsoil. The presence of the clay subsoil lends to slow permeability and, therefore, the water erosion hazard for these soils is rated high. The water-holding capacity is moderate, yet much of the soil moisture is not available for plant growth due to the salt content of the soil, as the depth to calcareous material ranges from 0 to 6 inches. Despite these limitations, the Spicerton series will produce an average of 700 lbs./acre (dry weight) of forage in a normal year, due to additional run-on moisture.

The final soil type on the proposed lease site consists of the series Cryorthents (X60) which occupies the steeper terrace breaks. These soils extend over the higher relief in the northwest sector of the lease, accounting for 13% of the total area. Cryorthents are generally shallow, less than 20 inches deep, and underlain by soft shale and sandstone which show little horizon development. These soils often contain areas of cobbled material and are, therefore, well drained but have low water-holding capacity. This type of soil regime is capable of producing only 300 lbs./acre of dry weight forage annually. This lack of plant production and

cover fail to adequately buffer the soil from exposure to strong winds. This condition, coupled with the fact that these soils are often located on unfavorable exposures, produces a high wind erosion hazard.

Although the soils are shallow and of fair productivity, the site has potential for satisfactory reclamation.

F. Water Resources

1. Ground Water - USGS is in the process of establishing ground water monitoring in conjunction with the McCallum EMRIA Study but to date has gathered insufficient data to accurately predict the ground water situation on the site. USGS was able to supply general information based on core drilling done for the McCallum Open File Report. The water level may vary between 20 and 80 feet below the surface. The most productive sands or aquifer is located 100 to 200 feet below surface. The transmissivity, or amount of water flowing through the aquifer, is estimated to be 300 gallons per day per foot of width. The rate of water movement through the aquifer varies from .01 to 1.0 foot per day. Water quality should meet state standards. The ph of the water ranges from 6.8 to 7.4.

   Because of the low permeability of the aquifer and the dipping structure, it was indicated by USGS that the ground water would not be adversely impacted by the proposed surface mining operation.

2. Surface Water - Detailed information on the surface water is also lacking. The proposed acreage is located in the Canadian River watershed. There are no live streams or water impoundments within the tract. Two intermittent streams bisect the tract. They are tributaries to a larger intermittent water flow located in Bolton Draw (see Maps 2 and 3). Small stock watering ponds are located one mile west of the site boundary, and a larger reservoir is situated in Bolton Draw, one-quarter mile east of the proposed lease area.

   As part of the EMRIA study, USGS established a surface water monitoring station in Williams Draw, located approximately 3 miles north of the tract. It is similar in size and type to Bolton Draw. The measured discharge through Williams Draw during the spring snow melt period ranged from 1 to 2.5 cubic feet per second. The sediment concentration during that time varied between 29 and 31 parts per million. The water quality information was not available but was thought to meet state standards.

3. Water Use - Most of the water produced on the tract is either absorbed into the soil to support plant growth or to recharge the aquifer. Runoff water flows either into the Canadian River or is collected in storage facilities for livestock and wildlife watering. A limited amount of water is used by the mining operations for dust control. No domestic or municipal water supplies are within the area.

4. Flood Plain - The proposed lease area does not lie in a designated flood plain or flood hazard area susceptible to a 50- or 100-year event.

5. Water Rights - There are no live streams within the proposed lease tract and therefore no surface water rights will exist. No water wells are present and no evidence of any ground water rights exists.

G. Vegetation - A large portion of the proposed coal lease site (approximately 80 acres) was aerially sprayed in 1964 as part of range improvement project designed to remove a predominantly sagebrush-salt shrub canopy. Despite the removal of the shrub community 15 years ago, the spray area has largely returned to its original complement of native perennial vegetative species.

Today, the proposed lease site is largely composed of salt-tolerant grassland-shrub associations. The ephemeral drainages, which characterize the site, consist of clay pan* and salt flat* range sites which are dominated by sod-farming grasses and grass-like plants. Major among the herbaceous species are western wheatgrass (Agropyron smithii), streambank wheatgrass (Agropyron riparium), numerous sedge species (Carex spp.), and several varieties of bluegrass (Poa spp.). Important shrub species of these drainage bottoms include big sagebrush (Artemesia tridentata), alkali sagebrush (Artemesia longiliba), three-tip sagebrush (Artemesia tripartita), gray horsebrush (Tetradymia canescens), greasewood (Sarcobatus vermiculatus) and Vasey rabbitbrush (Chrysothamnus vaseyi).

The remaining areas of higher relief in the site feature wind-swept slopes and valley benches that form a mosaic of low-line shrub-grass communities. These communities are derived from the dry exposure*, valley bench*, and dry mountain loam* range sites. The predominant perennial species in these areas are big sagebrush (Artemesia tridentata), black sagebrush (Artemesia nova), fringed sagebrush (Artemesia frigida), bitterbrush (Purshia tridentata), a variety of rabbitbrushes (Chrysothamnus spp.), Letterman's needlegrass (Stipa lettermanii), sheep fescue (Festuca ovina), June grass (Koeleria cristata), bluebunch wheatgrass (Agropyron spicatum), bottlebrush squirretail (Sitanion hystrix), Indian ricegrass (Orysopsis hymenoides), several varieties of buckwheat (Eriogonum spp.) and phlox (Phlox spp.).

In addition to the dominant perennial vegetation on the proposed lease site, there are also a number of lesser annuals scattered along the dry exposures. These usually consist of a variety of annual forbs which blossom only for a brief period in the spring and account for less than 5% annual production. There are no forms of aquatic vegetation on the lease site, and no threatened or endangered plant species are known to exist within the area.

With regard to the revegetation potential of the site, many of the native plant species may be reestablished if proper reclamation techniques are

*Range site descriptions per Soil Conservation Service (1975).

utilized. Interseeding with a number of wheatgrass hybrids and other introduced grass and forb species may be necessary and/or more favorable, depending upon site conditions at the time of reclamation. Major shrub species such as big sagebrush and bitterbrush may have to be planted in order to successfully reestablish. Proper seedbed preparation, slope contouring, fertilization, and snow fence construction may be used as effective tools toward reclaiming this site back to a facsimile of its native condition.

H. Animals - The proposed lease area provides habitat for a variety of wildlife species associated with the sagebrush ecosystem. The following lists the more common wildlife species inhabiting the proposed lease area:

Antelope
Mule deer
Coyote
Red fox
Badger
Striped skunk
Cottontail rabbit
White-tailed jackrabbit
Richardson's ground squirrel
Sage grouse
Mourning dove
Bald eagle
Golden eagle
Kestrel
Red-tailed hawk
Swainson's hawk
Marsh hawk
Brewer's sparrow
Horned lark

Approximately 25 antelope inhabit the proposed lease area, primarily during spring and summer. Approximately 150 mule deer tend to winter on slopes and ridges adjacent to the proposed lease area until snow depth forces them to lower elevational ranges north of Walden. The proposed lease area is part of a broad migration zone as well as winter range for approximately 150 deer that summer in the Medicine Bow Mountains.

Small mammal and songbird data is lacking for the proposed lease area. The few species listed above are known to inhabit the proposed lease area and adjacent, similar habitat. Biological relationships such as population numbers, distribution, habitat requirements, etc., for small mammals and songbirds within the proposed lease are unknown at this time.

The raptors listed above, with the exception of the bald eagle and peregrine falcon, are common users of the proposed area. Hunting for prey food species is considered the most important raptor use of the proposed lease area. Prey species available for raptors in the lease area include those

small mammals and songbirds listed above. Segregated patches of quaking aspen located on Johnny Moore Mountain and on east-facing slopes one to two miles south and west of the proposed lease area provide perching and nesting habitat for raptors; however, active raptor nests have not been documented within two miles of the lease area. Prairie falcons, kestrels, marsh hawks, red-tailed hawks, and Swainson's hawks are commonly observed hunting in the proposed lease area.

Bald eagles and peregrine falcons, both classified endangered by the U. S. Fish and Wildlife Service and the State of Colorado, have been observed in the vicinity of the proposed lease area. Essential habitat for these two species has not been designated anywhere in North Park. No other endangered wildlife are known to inhabit or use the proposed lease area.

There are no aquatic wildlife or wild horses using the proposed site.

The proposed lease area provides nesting and brood-rearing habitat for sage grouse. In addition, a sage grouse strutting ground is located approximately 1,400 feet southwest of the proposed lease area (see Map 4). This ground was located during strutting season in 1978 and official strutting grouse counts were conducted in 1979. The peak grouse attendance on this ground was 16 males and 4 females and occurred on April 24 and 25, 1979. Several sage grouse nests were located immediately south of the proposed lease area by Colorado Division of Wildlife personnel in 1979 (see Progress Reports; BLM Contract No. YA-512-CT9-35).

I. Cultural Features (Prehistoric and Historic) - Eighty acres of the 110 acres applied for have been inventoried for cultural resources by the University of Colorado, Boulder, as part of the 1977-78 North Park Potential Coal Production Area Cultural Resource Inventory contract (CX 1595-7-0008). This inventory sought to identify both prehistoric and historic cultural remains and was conducted on a Class III (100% areal coverage) level of intensity. No sites or remains of cultural resources were located in these 80 acres (T. 8 N., R. 78 W., Sec. 10: SE¼NE¼NE¼, E½SE¼NE¼, and Sec. 11: NW¼NW¼, N½N½SW¼NW¼).

Of the remaining 30 acres (Sec. 11: all of SW¼NW¼ except N½N½SW¼NW¼), about 6 acres were examined on a judgmental reconnaissance intensity level by the Kremmling Resource Area (KRA) Archeologist. This examination included geographical areas which would have yielded the best potential for the presence of cultural remains; i.e., two southwest-to-northeast ridge/hilltops in Section 11: SW¼NW¼. No prehistoric remains were located there. A historic corral of indeterminate age and origin was located in Section 11: SE¼SW¼NW¼. It was in poor condition (fallen and rotting on the ground), isolated (no adjacent associated structures), and is of no apparent, culturally significant value.

The Office of the State Archeologist, Colorado (OSAC) and the State of Colorado's Historic Preservation branch were consulted concerning new cultural sites in the area and their significance relative to the National

Register of Historic Places (NRHP). No sites "on," "eligible to," or "likely to be eligible to" the NRHP were noted by the State of Colorado in the lease application area.

J. Aesthetics - The proposed lease area has been designated as a visual resource management Class IV area, indicating a landscape of relatively low visual resource value. This Class IV designation was derived from three elements: a low visual sensitivity level, a Class B scenic quality rating, and a seldom seen visual zone rating. Basically, this area has very little variety in form, line, color, and texture.

K. Recreation Resources - A general indication of the existing and potential recreation resources is the ecological land use classification system. This area has been designated as having a low capability to attract and maintain general dispersed recreation and snowmobiling. This area is a low-level sage grouse and antelope hunting site, but receives very little hiking, horseback riding, or off-road vehicle use.

L. Wilderness Values - The land under consideration does not have any existing roadless and wilderness character. No public comment was received during the initial wilderness inventory indicating that the area might have roadless and wilderness character.

M. Areas of Critical Environmental Concern (ACEC's) - This area does not contain any important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or life-threatening natural hazards to warrant the designation as an ACEC.

N. Social Setting - Jackson County has a population of approximately 2,400 and is growing approximately 3% a year. This is a ranching community composed of second and third generation homesteaders. Racial and ethnic minorities represent less than 5% of the total population.

Social and cultural activities are oriented toward the ranching and small-town lifestyle. Religious, school, and fraternal organizations also generate many of the social interactions.

There is a tremendous amount of pride and cohesiveness among the residents who have etched a living. Family-oriented residents have a very strong community spirit, especially when outside forces threaten the conservative stance of the community. As with other western communities, too many regulations, laws, policies and plans receive negative reactions unless local control groups are consulted and their input is incorporated.

Attitudes toward change and growth are favorable if implemented at a slow, controlled pace. Economic development is welcomed if most of the benefits accrue to the local population. Summer and winter tourism has a slight impact on the social system of Jackson County. Tourists, including hunters from out of the county and state, fishermen, and snowmobilers are welcomed if they leave their money and not their litter.

Opportunities for large volume social contacts normally are not found in the county itself. Additional social and cultural activities occur in the larger cities such as Fort Collins, Denver, and Laramie. Specific examples would include Frontier Days in Cheyenne and the National Western Stock Show in Denver.

O. Economic Setting- The three largest industries in Jackson County are ranching, wood production/manufacturing, and mining. Ranching accounts for the largest business investments and is very land-intensive. Timber production occurs primarily on U. S. Forest Service and BLM land and is also very land-intensive. Mining occurs on both private and federal land but differs in that it is labor and capital-intensive. Product sales for 1970 were as follows: (a) All-agricultural sales: $5,000,000, (b) Timber sales: $215,000, and (c) Mineral sales: $2,090,000. Mineral sales have increased tremendously since 1970 due to the commencement of the Kerr and Sigma Mines which together produced approximately 700,000 tons of coal in 1978.

In 1977, the following four sectors accounted for the largest employers: agricultural and fisheries: 20%, retail trade: 21%, mining: 13%, and all manufacturing: 12%. Of these, coal mining provided approximately 8% of the employment. This 8% may not reflect totally those involved in the transport of coal. The total labor force of Jackson County was 655 in 1977.

The other business sectors of Jackson County are relatively small, due to the remoteness of the area, severe winter weather conditions, and small population base. Retail and wholesale trade is limited to several small retail stores in Walden that provide soft wares, groceries, and gasoline. Most industrial equipment and supplies are purchased in Laramie, Fort Collins, or Denver.

The existing Sigma Mine presently employs 17 fulltime workers with a total salary cost of $363,000 per year. From the period of August, 1976 to June, 1978, development expenses totalled $2,634,607. During the same period, mining expenses were $390,166 and crushing expenses were $328,139. It can be assumed that most of the major capital expenditures made for heavy equipment and parts were not made in Jackson County. The county and state, however, do realize positive economic benefits through (a) purchase of soft goods and other supplies, (b) payment of payroll, property and severance taxes, and (c) housing, food services, and personal gasoline sales.

P. Land Uses

The subject land has been used almost exclusively for wildlife habitat and livestock grazing. Presently, the subject land is used for wildlife habitat, livestock grazing, limited recreation (hunting), and the sitting of three rights-of-way (C-9231, Mountain States Telephone and Telegraph Company, an underground telephone cable which serves the Sigma Mine;

C-23190, Wyoming Fuels Company, a tramroad which serves the Sigma Mine; and C-26791, M & T Incorporated, an access road to its active oil well located in the SW¼SE¼ of Section 10). Three inactive (historically and presently) oil and gas leases occur on the subject lands. These are: C-11753, M & T Incorporated/Fuel Resources Development Company, NW¼NW¼ of Section 11; C-26903, Joseph S. Snider, SE¼NE¼NE¼ of Section 10; C-26519, M & T Incorporated/Fuel Resources Development Company, E½SE¼NE¼ of Section 10 and SW¼NW¼ of Section 11. Two seldom-used vehicle trails (one which bisects the subject land from east to west; the other is along the east boundary of the NW¼NW¼ of Section 11) are present on the subject land (see Map 4 and Photographs 1 through 3).

There are portions of two grazing allotments within the proposed lease area. Allotment No. 7010 is currently under permit to the Haller Livestock Company. The allotment consists of 2,500 acres of public land and 1,025 acres of private land. Estimated carrying capacity of the public land within the allotment is 565 AUM's (Animal Unit Months), with an average stocking rate of 4.4 acres/AUM. The season of use is from May 15 to July 1 with 497 AU's (Animal Units).

Allotment No. 7136 is currently under permit to the Noffsinger Manufacturing Company. The allotment consists of approximately 1,200 acres of public land. Estimated carrying capacity of this allotment is 232 AUM's, with an average stocking rate of 5.18 acres/AUM. The season of use is June 27 to July 15, with 400 AU's.

Both allotments have been rated as being in fair condition with a stable trend, according to the North Park Unit Resource Analysis (URA),1975.

There are currently two range improvements within the proposed lease area. BLM Project No. 3672 consists of nearly three miles of allotment boundary fence, of which approximately one-quarter mile falls within the proposed lease area. Project No. 3778 consists of 1,940 acres of a brush control treatment by spraying (1964), of which approximately 80 acres fall within the proposed lease area. There are no water-oriented projects within the boundaries of the lease area.

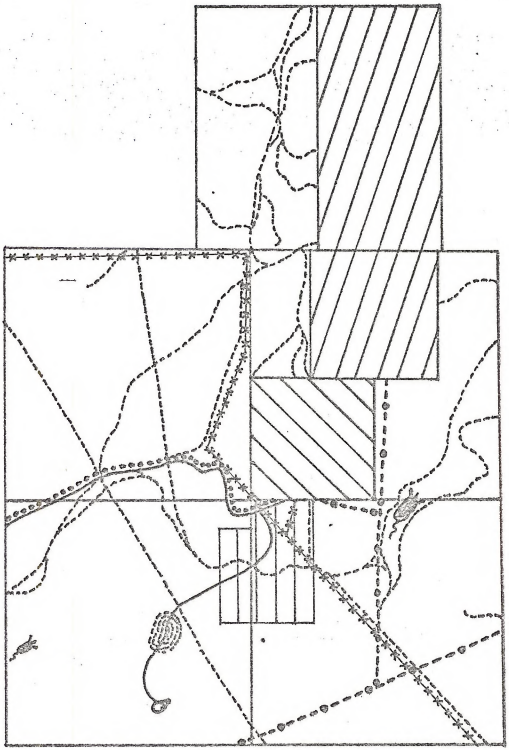
(See Map 4 for locations of allotment boundaries and range improvements.)

There are no federal land systems (National Parks, National Wildlife Refuges, National Recreation Areas, National Trails, National Wild and Scenic Rivers, etc.) on the subject land, and the subject land is not within any federal land system.

There are no municipal watersheds on the subject land, and the subject land is not within any municipal watershed.

There are no national resource waters, as defined by the State of Colorado, on the subject land, and the subject land is not within any national resource water.

MAP 4



(over)

MAP 4 CONTINUED

Subject land.

Sigma Mine/Wyoming Fuel Company.

Kerr Pit No. 1/Kerr Coal Company.

Improved road.

Unimproved road/trail.

Electric powerline.

Underground telephone cable.

Range livestock fence.

Reservoir.

Sage grouse strutting ground.

Oil well.

Footnote: Grazing allotment no. 7010 encompasses the area below and left of the range livestock fence; grazing allotment no. 7136 encompasses the area above and right of the range livestock fence.

Adjoining lands have been and are being used for wildlife habitat, livestock grazing, limited recreation (hunting), very limited oil and gas production, coal mining (Sigma Mine/Wyoming Fuel Company, adjacent north of the subject land, approximately 92,000 tons annual production; and Kerr Pit No. 1/Kerr Coal Company, adjacent north of the Sigma Mine, approximately 500,000 tons annual production), the siting of utilities (electricity and telephone), the siting of stock-watering reservoirs, and the siting of several roads and trails associated with these uses. (See Maps 2 through 4 and Photographs 1 through 7).

Q. Transportation and Utility Networks - The Wyoming Fuel Company transports coal from the Sigma Mine to the Union Pacific Railroad coal-loading facility located in Walden, Colorado (which is located approximately 12 miles west of the Sigma Mine) by means of rear-dump, highway coal trucks. From the Sigma Mine, the coal trucks travel westward on the Sigma Mine tramroad to Jackson County Road No. 23A; northward on 23A to Jackson County Road No. 12E; and westward on 12E to Walden (see Map 5). In Walden, the coal is loaded onto railroad coal cars and shipped to Wyoming Fuel Company's customers in the midwest.

Mountain States Telephone and Telegraph Company furnishes telephone communication to the Sigma Mine by an existing underground telephone cable which is buried on the north side of the Sigma Mine tramroad and which parallels the tramroad. Mountain Parks Electric, Incorporated, furnishes electrical power to the Sigma Mine by existing powerlines located east and south of the mine (see Map 5).

Neither the facilities nor the location of the facilities comprising these transportation and utility networks will be modified if Wyoming Fuel Company's Emergency Coal Lease application is approved.

Section IV - Environmental Consequences

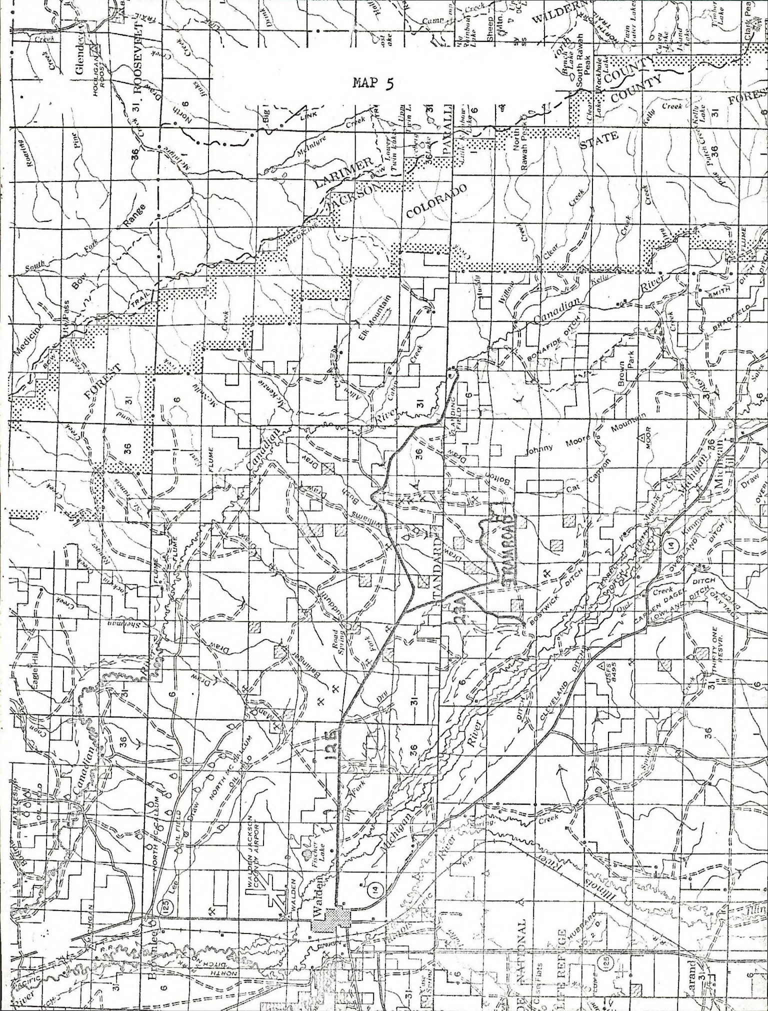
A. Lease the 110 acres of strippable coal reserves within the tract adjacent to the Wyoming Fuels' Sigma Mine. The environmental consequences addressed in this section will be associated with surface mining employing a stripping method similar to what is presently used in the Sigma Mine.

1. Impacts

a. Climate - The general climate of the vicinity will be unaffected, but the micro-climates on the proposed area would be changed. Rearrangement of the topography would change the wind patterns and vegetative removal would result in extreme temperature changes on the bare ground. These impacts are expected until the site is properly reclaimed, recontoured, and revegetated. Reclamation would be required by existing laws and regulations governing coal leasing and surface mining.

b. Air Quality - Air quality will continue to be impacted at its present rate. Dust and particulate matter would be generated by the mining operation and exhaust would be emitted by the equipment

MAP 5


ROOSEVELT
Glendevey
HOHLIGAN ROOST
LARIMER
JACKSON
COLORADO
STATE
COUNTY
North Rawah Peak
South Rawah Peak
Medicine Bow
Range
FOREST
Elk Mountain
Canadian
River
Johnny Moore Mountain
Cat Canyon
Bolton Draw
LANDING FIELD
Brown Park
BONAFIDE DITCH
SMITH DITCH
BRADFIELD
Michigan
Michigan Hill
Kimmons
OVERLAND DITCH
BOSTWICK DITCH
CLEVELAND DITCH
LOWLAND DITCH
THIRTY ONE RESVR.
STEAMBOAT
STANDARD
Williams Draw
Bush Draw
Pudding
Sherman
Ballinger
Eagle Hill
Coon Creek
BATTLESHIP OIL FIELD
NORTH MC CALLUM OIL FIELD
WALDEN JACKSON COUNTY AIRPORT
Walden
Fischer Lake
Brownlee
NORTH PARK DITCH
PACIFIC
Illinois
River
NATIONAL
WILDLIFE REFUGE
HUBBARD
Larand
125
14

and haulage vehicles. If the mining within the area did not expand to exceed present operations, the air quality would continue to meet state requirements.

c. Topography, Geology, and Paleontology - The general topography within the proposed tract would be temporarily altered during the mining operation, but it is technically feasible to return it to its original contour. Undiscovered paleontological resources could be damaged or destroyed, but that possibility is remote due to the characteristics of the Coalmont formation.

d. Minerals - Approximately 731,000 tons of coal, a non-renewable resource, would be removed and utilized by man. Oil and gas exploration and development would be curtailed within the tract boundaries until reclamation was completed. The possibility of off-set drilling exists to develop this resource if exploration were necessary prior to mine reclamation.

e. Soils - Approximately 80 to 100 acres of topsoil would be impacted during the mining operation. Some soil would be lost through wind and water erosion. There could be some mixing of soil types and soil horizons. This mixing could affect the fertility of the soil. Existing lease and mining regulations would help to mitigate these impacts. Prompt backfilling and revegetation would also reduce the adverse effects of mining on the soils.

f. Vegetation - The vegetation on at least 85% of the lease tract would have to be removed in order to support a comprehensive surface mining program. This would result in a component loss in grazing and rearing habitat for both domestic and wild animals. If sufficient habitat is maintained in other areas during mining operations, the direct impact may be reduced.

Existing regulations require that the surface vegetation removed from mining areas be reestablished (in like kind) during a reclamation phase of operation. The vegetation on the site may be lost for approximately 13 years (8-year active mining lease plus 5 years of active reclamation). The success of reclamation, in terms of native plant survival and reestablishment, has not yet been determined. However, with new and improved techniques in seed bed preparation, seed strain development, and rangeland fertilization, the land may be reclaimed to a vegetative condition more productive than its previous state.

g. Animals - The 110 acres of wildlife habitat would be abandoned by the wildlife species mentioned in Section III due to the loss of food, cover, and solitude currently provided by the proposed lease area. There is sufficient habitat surrounding the tract of similar type which may be used to support most of the displaced species. There is no major decline in numbers expected if the lease tract were sold. It is expected that the impacted species would eventually return when the area is completely reclaimed.

The sage grouse strutting ground located south of the proposed lease area may be abandoned by breeding sage grouse.

Mule deer will necessarily alter their migration pattern to avoid the proposed lease area during active mining when the deer are enroute to and from lower elevational winter ranges.

h. Cultural Resources - No cultural resource sites were discovered on the 86 acres that were surveyed. Prior to any surface disturbance, the remaining unsurveyed acres would have to be surveyed. The possibility always exists that unknown buried sites might be damaged or destroyed during the mining process.

i. Aesthetics - There would be a short-term visual contrast rating of 19 for land features and 4 each for vegetal and structural features. This is a significant visual contrast but is within the acceptable Bureau limit of 20 points per feature for a VRM Class IV area. The major contrast would occur in the form, line, and color characteristics. The long-term visual contrast rating would be 6, which is a relatively low visual contrast rating.

j. Recreation - Implementation of this lease would result in a minor loss to hunting and other recreational pursuits.

k. Social and Economic Aspects - A net beneficial economic impact would occur due to: (a) addition of three or four jobs that could be filled at the local level, (b) purchasing of soft goods and other locally available products, (c) maintenance of the local tax base, and (d) continued production of coal to reduce dependency on other fuel sources.

There would be little or no significant impacts on the social and cultural systems of Jackson County.

l. Land Uses

The surface mining operation would require a partial realignment of the tramroad that serves as access to M & T's oil production facility.

Domestic grazing would be eliminated on portions of two allotments. The following tabulations represent acreages, AUM's and percentage AUM's of the total preference of each allotment affected by development through surface mining.

ALLOTMENT NO.	LESS ACRES	LESS AUM'S	% LOSS OF TOTAL
7010	80	18	3%
7136	30	6	2.5%
	110	24	

Due to the decrease in public land acreage available for livestock grazing use within the two allotments, the grazing preferences of each permittee will be reduced by the amounts shown in the above tabulations.

2. Other Committed Mitigation Measures Not Included In Leasing Alternatives

Most impacts can be mitigated through the terms, conditions and stipulations of the lease, the mining permit and other permits necessary to mine federal coal on federal lands.

Some site specific mitigations that should be considered are:

a. Since the soil layers are thin and of fair productivity, care should be exercised in its removal for stockpiling. Subsoils should not be mixed with top soils. Stored soil should be stabilized as quickly as possible to avoid losses through wind and water erosion. Since the soil structure may be modified during this process, fertilizer would be required to facilitate the prompt reestablishment of a vegetative cover during the reclamation process.

b. The short growing season and the sometimes severe weather conditions would require snow fencing on the reclaimed areas to reduce the impact of wind on the ground surface and to trap snow to provide more soil moisture. These measures would aid the revegetation process.

c. The revegetation should consist of the native species as identified in the existing environment. Most grasses and forbs can be seeded, whereas some of the brush species would require planting or transplanting clumps from the area adjacent to the tract.

d. An EMRIA study is currently underway on reclaimed mine lands on the Kerr Coal site. Within two years reliable site specific data relating to a, b, and c above will be available. Some flexibility should be allowed in the specific reclamation stipulations dealing with the rate of fertilizer per acre, the exact seed mixture and the snow fencing requirements until the EMRIA study has some conclusive results.

e. The applicant should be required to restrict human access on all of the lease area by appropriately fencing the boundaries of the lease area. Additionally, the applicant should inform the public of the potential dangers present on the lease area by adequately signing the boundaries of the lease area.

At all times during mining and reclamation, the applicant should provide appropriate access to M & T Incorporated through the lease area so that M & T Incorporated can continue having adequate access to its active oil well located in the SW¼SE¼ of Section 10. During reclamation the applicant should re-establish M & T Incorporated's existing access road according to the terms and conditions as setforth in road right-of-way C-26791 issued by BLM. If providing access to M & T Incorporated through the lease area is not possible, then the applicant should permanently relocate the existing access road away from the lease area upon approval of such relocation by M & T Incorporated and by BLM. The applicant should bear all expenses involved in providing access for M & T Incorporated.

3. Adverse Environmental Effects Which Cannot Be Avoided Should This Alternative Be Implemented

   a. Air quality will be impacted by dust and exhaust but not to any greater levels than currently exist.

   b. Some transporting of soil off the site by wind and water erosion will occur.

   c. Temporary loss of 110 acres of native vegetation.

   d. Loss of the use of the site by wildlife, livestock and the recreating public for a period of 8 to 13 years.

   e. Possible damage or loss of unknown cultural or paleontological resources.

   f. Short-term visual contrast for land feature of form, line and color.

4. The Relationship Between Short-Term Uses Versus Long-Term Productivity

   The short-term use will be the mining operation removing coal, which will eventually supply needed energy to man.

   Upon complete successful reclamation the site would be restored to its present productivity and uses to be used in the long-term.

5. Irreversible or Irretrievable Commitments of Resources

   The leasing for surface mining will result in the extraction and consumption of 731,000 tons of the non-renewable coal resource. The remote possibility exists that unknown cultural or paleontological resources may be damaged or destroyed during mining.

   No other major irreversible or irretrievable commitments of other resources is anticipated.

6. Possible Conflicts Between The Alternative and Federal, State or Local Land Use Plans and Policies

The leasing alternative is not in conflict with any existing land use plans or policies. The North Park MFP completed in 1975 and updated in 1977 supports leasing in this area. Public meetings were held on this MFP and prior to authorizing the mining operations of Kerr Coal and Wyoming Fuels Sigma Mine. The public favored orderly, controlled development of coal resource with emphasis on environmental protection. The Jackson County Board of Commissioners have endorsed this leasing alternative.

The unsuitability criteria as identified in 43 CFR 3461.1 were applied to this tract and the lands were found to be suitable for coal leasing.

B. Do not offer the 110 acre tract of stripable coal reserves for lease.

1. Impacts

This alternative would result in no new or additional environmental impacts to the subject tract. Not leasing would result in the Sigma Mine ceasing operations. There is no other available coal reserves adjacent to the mine that Wyoming Fuels could obtain to keep the mine in operation. The economic impacts would be the loss of 17 to 22 jobs with annual salaries of $363,000.00. There would be a tax loss to the County and economic impacts to local service, supply and transportation businesses within the County. The coal within this tract would not be lost to future development, because it is feasible that another mine could be started at another location on the coal seam and mine through this tract to the Sigma Mine boundary.

APPENDIX I

UNSUITABILITY PROCESS

The proposed emergency coal lease tract was analyzed using the twenty (20) criteria pursuant to 43 CFR 3461.1. The purpose of the unsuitability criteria is to point out areas with key features and environmental sensitivities that make them unsuitable for certain coal mining and, therefore, not suitable for coal leasing.

Contacts were made with the State of Colorado, Division of Wildlife, the Department of Natural Resources, State Historic Preservation Officer and Advisory Council for Historic Preservation; United States Fish and Wildlife Service; United States Geological Survey; and the United States Soil Conservation Service. In most cases information was obtained from the above agencies which was used in the application of the unsuitability criteria. When no information was supplied or available from the above agencies, then the necessary information was obtained from the North Park Unit Resource Analysis and field inspections by Resource Area Staff.

The application of the twenty criteria found the tract suitable for leasing provided that the few areas of conflict identified on the following chart are resolved.

	Tract Conflict With Criteria	Suitable for Leasing	Conflict Resolution or Recommendation
CRITERION 1 - LEASING EXCLUSIONS			
All federal lands included in or candidates for inclusion in the following land systems or categories are not available for coal leasing: National Park System, National Wildlife Refuge Systems, National Wilderness Preservation Systems, Wild and Scenic Rivers System, National Recreation Areas, and other federally purchased recreation lands, Custer National Forest (exclude surface mining only) and federal lands in incorporated cities, towns, and villages (SMCRA).	No No leasing exclusions.	Yes	
CRITERION 2 - RIGHTS-OF-WAY AND EASEMENTS			
Federal lands that are within rights-of-way or easements or surface leases for residential, commercial, industrial, public purposes and agricultural crop production shall be excluded from coal leasing.	Yes Tramroad R/W C-26791.	Yes	Lessee will provide access through the lease area for R/W holder during mining; during reclamation, lessee will reestablish existing access road or relocate it so as to provide access. All costs to be borne by the coal lessee.
CRITERION 3 - BUFFER ZONES ALONG R/W's, COMMUNITIES, AND BUILDINGS			
Federal lands affected by Section 522(c) of the Surface Mining Control and Reclamation Act shall be excluded from leasing. This includes lands within 100' outside R/W of public highway or within 100' of cemetery, and within 300' of occupied building, school, church, community or institutional building, or public park or within 300' of an occupied dwelling unless waived by the owner thereof.	No No lands affected by Sec. 522(e) SMCRA.	Yes	

	Tract Conflict With Criteria	Suitable for Leasing	Conflict Resolution or Recommendation
CRITERION 4 - WILDERNESS			
Federal lands designated as wilderness study areas are unsuitable for surface mining and shall be excluded from coal leasing while under review by the Administration and Congress for possible Wilderness designation.	No No wilderness area. No public comments received indicating the area has roadless/ wilderness character.	Yes	
CRITERION 5 - SCENIC AREAS			
Scenic federal lands designated by visual resource management analysis as Class I or II (areas of outstanding scenic quality and/or high visual sensitivity), but not currently on the National Register of Natural Landmarks, shall be excluded from coal leasing.	No No Class I or II VRM Classification.	Yes	
CRITERION 6 - LANDS USED FOR SCIENTIFIC STUDIES			
Federal lands being used for scientific studies involving food and fiber production, natural resources, or technology demonstrations and experiments are unsuitable for mining and shall be excluded from coal leasing.	Yes Tract within sage grouse study area Project W-37-R.	Yes	Monitor potential impacts on sage grouse during mining, particularly Perdiz strutting ground.

	Tract Conflict With Criteria	Suitable for Leasing	Conflict Resolution or Recommendation
CRITERION 7 - HISTORIC LANDS AND SITES			
All districts, sites, buildings, structures, and objects of historic, architectural, archeological, or cultural significance that are included in or eligible for inclusion in the National Register of Historic Places, and an appropriate buffer zone around the outside boundary of the property (to protect the inherent values of the property that made it eligible for listing in the National Register) are unsuitable for coal mining and shall be excluded from leasing. The size and shape of the buffer zone should be determined in consultation with the Advisory Council on Historic Preservation or by procedures approved by the Advisory Council.	No No sites eligible for National Register.	Yes	Survey re[illegible] inventoried 30 acres. Afford protection/ mitigation to significant properties via 36 CFR VIII 800. Includes sites uncovered by mining.
CRITERION 8 - NATURAL AREAS			
Federal lands designated as natural areas or National Natural Landmarks are unsuitable for surface coal mining and shall be excluded from coal leasing when such areas are of national significance.	No No Natural Areas.	Yes	
CRITERION 9 - FEDERALLY LISTED ENDANGERED SPECIES			
(a) Legally designated critical habitat for federal threatened/endangered (T/E) plant and animal species are unsuitable for coal mining and shall be excluded from coal leasing.	No No federally listed T/E species.	Yes	
(b) Essential value habitat for federal T/e species as determined by the FWS and the land management agency where the presence of T/E species has been scientifically documented are excluded from coal leasing.			

	Tract Conflict With Criteria	Suitable for Leasing	Conflict P or Rec
CRITERION 10 - STATE LISTED ENDANGERED SPECIES			
Habitats deemed critical or essential for State listed endangered or threatened plant and animal species are unsuitable for mining and shall be excluded from coal leasing.	No No State listed T/E species.		Yes
CRITERION 11 - BALD AND GOLDEN EAGLE NESTS			
Bald and Golden Eagle nests that are determined to be active and a buffer zone of land included in a ¼-mile radius from the nest are areas which shall be excluded from coal leasing.	No No active nests within 2 miles of tract.		Yes
CRITERION 12 - EAGLE ROOST AND CONCENTRATION AREAS			
Bald and Golden Eagle roost and concentration areas used during migration and wintering shall be excluded from coal leasing.	No No eagle roost or concentration areas.		Yes
CRITERION 13 - RAPTOR CLIFF NESTING SITES			
Federal lands containing raptor cliff nesting sites with active nests and a buffer zone of federal lands ¼-mile radius from the nest to provide needed prety shall be excluded from competitive leasing.	No No raptor cliff nesting sites.		Yes
CRITERION 14 - MIGRATORY BIRDS			
Federal lands which are high priority habitat for migratory bird species of high federal interest on a regional or national basis as determined jointly by the federal land management agency and the FWS that are determined to be high priority habitat shall be excluded from coal leasing.	No No high federal interest migratory bird habitat.		Yes

	Tract Conflict With Criteria	Suitable for Leasing	Conflict Re[illegible]ion or Recom[illegible]
CRITERION 15 - FISH AND WILDLIFE HABITAT			
Fish and wildlife habitat for resident species of high interest to State that is essential for maintaining priority wildlife species as agreed by the State wildlife agency and federal land management agency shall be excluded from leasing. These shall include: - Active dancing and strutting grounds for sage grouse, sharp-tailed grouse, and prairie chicken. - The most critical winter ranges for deer, antelope, and elk. - Migration corridors for elk.	Yes An active sage grouse strutting ground.	Yes	A 1,400-[illegible] buffer [illegible] should be sufficient to reduce impacts on strutting sage grouse.
CRITERION 16 - FLOOD PLAINS			
Riverine, coastal, and special flood plains (100-year recurrence interval) are natural hazard lands and shall be excluded from coal leasing.	No No flood plains.	Yes	
CRITERION 17 - MUNICIPAL WATERSHEDS			
Lands used as a municipal watershed shall be excluded from coal leasing.	No No municipal watersheds.	Yes	
CRITERION 18 - NATIONAL RESOURCE WATERS			
Federal lands with National Resource Waters, as identified by States in their water quality management plans and a buffer of federal lands ¼-mile from the outer edge of the far banks of the water are unsuitable for mining and shall be excluded from coal leasing.	No	Yes	

	Tract Conflict With Criteria	Suitable for Leasing	Conflict Resolution or Recommendation
CRITERION 19 - ALLUVIAL VALLEY FLOORS			
Federal lands that are Alluvial Valley Floors shall be excluded from coal leasing for surface mining. Alluvial Valley Floors means unconsolidated stream-laid deposits holding streams where water availability is sufficient for subirrigation or flood irrigation agricultural activities but does not include upland areas which are generally overlain by a thin veneer of colluvial deposits composed chiefly of debris from sheet erosion, deposits formed by unconcentrated runoff or slope wash, together with talus, mass-movement accumulation and wind-blown deposits. Procedures for identifying these lands can be found in 30 CFR, Part 715, Surface Coal Mining and Reclamation Operations, Appendix, Alluvial Valley Floors Technical Guidelines, Federal Register, Volume 43 #166, Friday, August 25, 1978, pages 38035ff.	No No Alluvial Valley Floors.	Yes	
CRITERION 20 - STATE-PROPOSED CRITERIA			
Federal lands in a state to which is applicable a criterion proposed by the state and adopted by a rulemaking by the Secretary of the Interior.	No No such lands identified by State.	Yes	

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